

ON A PLATYPUS EMBRYO FROM THE INTRA-  
UTERINE EGG.

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(*Abstract.*)

The paper is based on the examination of two embryos taken from eggs just ready to be laid. The eggs, both exactly of the same size, measured 18 by 13.5 mm., being somewhat larger than those described by Caldwell.

The embryo was found lying on the surface of a thin-walled vesicle with its long axis corresponding to the long axis of the egg. It measured 19 mm. in length from the anterior end of the medullary plate to the posterior end of the primitive streak. The vesicle on which the embryo lay consisted of two layers all over, an outer layer of cubical ectoderm cells, and an inner layer of large cells occupied almost entirely by yolk spheres—vitelline-entoderm cells. Between the ectoderm and the vitelline-entoderm the mesoderm extends round from a quarter to one-half of the circumference of the vesicle in the posterior region of the embryo. The vesicle completely filled up the interior of the shell, and contained a thin albuminous fluid. From the relatively very early great lateral extension of the mesoderm, and from the presence of a very distinct yolk-containing entoderm the vesicle of the Platypus embryo of this stage is regarded as transitional between the yolk-sac of Sauropsida and the typical mammalian blastodermic vesicle.

The embryo, with the exception of a slight head-fold, is quite flat. Medullary folds are absent except in the anterior region of the future fore-brain, where slight lateral upgrowths of the medullary plate appear. The appearance of medullary folds in this region is probably to be associated with the very early appearance of the optic grooves.

In the head region the cerebral vesicles are indicated by widening of the medullary plate. In the region of the hind-brain there are four pairs of well-marked neuromeres, and in the anterior region of the mid-brain a single pair of neuromeres, much less distinct than those of the hind-brain. Opposite the 2nd and 3rd neuromeres there exists on each side an extensive auditory plate already slightly grooved.

There are 17 pairs of somites which in the middle region of the trunk possess distinct cavities. Just external to the outer edges of the somites (with the exception of the first three) and between them and the lateral zone of mesoderm there occurs a narrow intermediate zone containing the Anlage of the Wolffian body. From the 7th somite posteriorly the Anlage of the Wolffian duct is free from the Anlage of the tubules. At its posterior end the Anlage of the Wolffian duct becomes reduced to a single cell which passes directly over into the ectoderm.

Double heart Anlagen are present, situated in greater part opposite the hind-brain region. No trace of a vascular area was visible in the fresh condition, though in the hardened blastoderm developing vessels are indicated by a mottling both in and around the amniotic area.

A distinct blastopore is present. It leads into the blastoporic canal which runs forward in the head process of the primitive streak and opens into the cavity of the vesicle.

The primitive streak extends behind the blastopore to a distance of 1.5 mm. The embryo more nearly resembles that of the Virginian Opossum (*Didelphys*) of 73 hours, described by Selenka, than any other embryo known to the authors. The *Platypus* embryo is, however, much longer. The marked retardation in the formation of the medullary folds and in the folding of the embryo is one of the most characteristic features of the embryo at this stage. This may be due to the mechanical effect of the rapid imbibition by the ovum of nutritive fluid secreted by the uterine glands.

This paper, with illustrations, will appear in the next Part of the Proceedings.